

RHINOPIAS CEA, A NEW SPECIES OF SCORPIONFISH FROM EASTER ISLAND

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ABSTRACT

The scorpionfish *Rhinopias cea*, an apparent close relative of *R. argoliba* from Japan, is described from a single specimen collected at Easter Island. It is distinct in having 18 pectoral rays, 56 scales in longitudinal series, no skin flaps on lower jaw, no supraorbital flap or tentacle, and the fourth dorsal spine longest, 2.6 in head; it is brownish orange-red in life, finely mottled with pale and blotched with dark brown, the most conspicuous markings two dark blotches on body above pectoral fin.

De Buen (1963) published a review of the fish fauna of Easter Island (also known by the native name Rapa Nui and the Spanish name Isla de Pascua). He listed 40 species of fishes. Randall (1970) reported on his and colleagues' Bishop Museum fish collections at Easter Island. He noted two important previous but unreported collections, one made in 1958 now at the Natural History Museum of Los Angeles County, and the second in 1964–1965, housed at the University of British Columbia. Randall (1976) reviewed the literature on Easter Island fishes, reporting the total fish fauna as 109 species. Ninety-nine are reef and shore species; 27 of these were then known only from the island, thus the percentage of endemism was 27.3. Randall and Cea Egaña (1984) recorded the Rapanui names of Easter Island fishes. DiSalvo et al. (1988) documented their ecological field work at Easter Island in 1985 and 1986. They added 33 fishes to the island's fish fauna, of which 13 were listed as undescribed. Randall (1992) recomputed the percentage of endemism of Easter Island fishes at 23.2, making it second for islands of Oceania only to the 25% endemism of the Hawaiian Islands.

Among the undescribed species of Easter Island fishes listed by DiSalvo et al. (1988) is a scorpionfish of the genus *Rhinopias* Gill. The purpose of the present paper is to describe this species.

Eschmeyer et al. (1973) revised the genus *Rhinopias*. They recognized the following four species: *R. aphanes* Eschmeyer, described from a specimen from New Caledonia misidentified as *R. frondosa* by Whitley (1964); *R. argoliba* Eschmeyer, Hirotsuki, and Abe, named from a single specimen taken in 50 m off Ito, Sagami Bay, Japan; *R. frondosa* (Günther), wide-ranging from East Africa and the Mascarene Islands to Japan and the Caroline Islands; and *R. xenops* (Gilbert), presently known only from the Hawaiian Islands and Japan.

Condé (1977) added a fifth species to the genus, *R. eschmeyeri*, from a single specimen taken at Mauritius. It is unique in having a large, round, fleshy flap above each eye.

MATERIALS AND METHODS

Standard length (SL) is the horizontal, straight-line distance from the front of the upper lip to the base of the caudal fin (posterior end of hypural plate); body depth is the maximum depth measured vertically from the base of the dorsal fin; body width is the greatest width just posterior to the gill opening; head length is taken from the front of the upper lip to the most posterior part of the opercular membrane; snout length is measured from the front of the upper lip to the edge of the orbit; orbit diameter is the greatest bony diameter, and interorbital width the least bony width; caudal-peduncle depth is the least depth, and caudal-peduncle length the horizontal distance between verticals at the rear base of the anal fin and the caudal-fin base; predorsal, preanal, and prepelvic distances are all

Table 1. Proportional Measurements of the Holotype of *Rhinopias cea* Expressed as Percentages of the Standard Length

Standard Length (mm)	156.0	Second dorsal spine	11.4
Body depth	46.8	Third dorsal spine	15.4
Body width	21.6	Fourth dorsal spine	17.4
Head length	46.5	Eleventh dorsal spine	7.4
Snout length	20.9	Twelfth dorsal spine	11.6
Orbit diameter	8.0	Longest dorsal ray	16.6
Interorbital width	5.0	Anal fin base	18.9
Upper jaw length	25.3	First anal spine	7.5
Caudal peduncle depth	12.2	Second anal spine	14.1
Caudal peduncle length	12.7	Third anal spine	14.7
Predorsal length	38.4	Longest anal ray	22.7
Preanal length	73.9	Caudal fin length	27.3
Prepelvic length	47.8	Pectoral fin length	32.5
Base of dorsal fin	59.7	Pelvic spine length	13.7
First dorsal spine	7.9	Pelvic fin length	26.3

measured from the front of the upper lip to the base of the first spine of each of these fins; pectoral-fin length is taken from the base of the uppermost ray to the tip of the longest ray, and pelvic-fin length from the base of the spine to the tip of the longest ray. Table 1 presents 30 body and fin measurements of the holotype. Proportional measurements in the text are rounded to the nearest 0.05.

The longitudinal scale series is the number of diagonal scale rows from the upper end of gill opening to the caudal-fin base; gill-raker counts are made on the first gill arch and include all rudiments; the raker at the angle is contained in the lower-limb count.

Eschmeyer (1969) is followed in the terminology of head spines.

The single type specimen is deposited in the Bernice P. Bishop Museum, Honolulu (BPBM).

Rhinopias cea new species

Figure 1

Rhinopias sp. DiSalvo, Randall, and Cea, 1988: 461 (Easter Island).

Holotype.—BPBM 36317, male?, 156 mm SL, Easter Island, Motu Iti, rocky bottom, 5 m, caught by hand, H. Garcia, 23 February 1985.

Diagnosis.—Pectoral rays 18; longitudinal scale series 56; lateral-line scales 26; fourth dorsal spine longest, 2.6 in head length; no obvious skin flaps on lower jaw; no supraorbital flap or tentacle; color in alcohol pale with two diffuse dark blotches above pectoral fin; color when fresh brownish orange-red, finely mottled with pale and blotched with dark brown.

Description.—Dorsal rays XII,9; anal rays III,5 (last dorsal and anal rays branched to base); pectoral rays 18, the uppermost simple, and the lower 11 simple and thickened; pelvic rays I,5; principal caudal rays 14, median 12 branched; upper and lower procurrent caudal rays 4, most posterior segmented; longitudinal scale series about 56 (scale rows irregular and difficult to count); tubed lateral-line scales 26; scales above lateral line to base of second dorsal spine 7; scales below lateral line to origin of anal fin 22 (counted vertically); predorsal scales 5; gill rakers 6 + 16; pseudobranchial filaments 31; branchiostegal rays 7; first dorsal pterygiophore a broad, very thin median plate (barely visible in radiograph); third neural spine projecting deeply into gap in first dorsal pterygiophore; remaining dorsal pterygiophores also broad and very thin medially but with strong lateral ridge on each side; second and third dorsal pterygiophores inserting into space between fourth and fifth neural spines; remaining dorsal pterygiophores of dorsal spines inserting one to each space between neural spines; vertebrae 6 + 18.

Body moderately deep, depth 2.15 in SL, and compressed, width 2.15 in depth; head length 2.15 in SL; snout length 2.25 in head length; dorsal profile of snout sinuous curve, initially convex, then deeply concave; orbit diameter 5.8 in head, eye protruding well above dorsal profile of head; interorbital space deeply de-

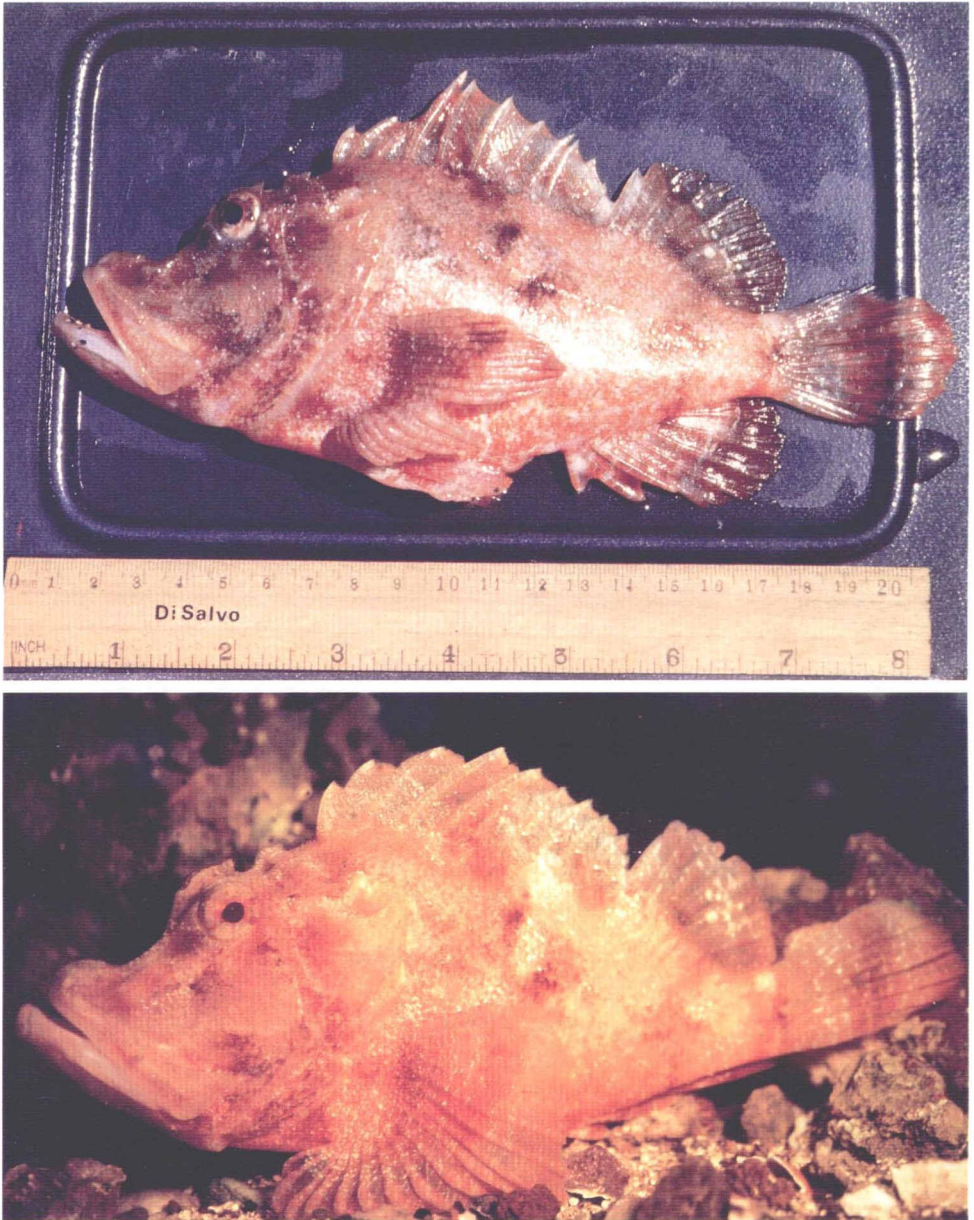


Figure 1. A. (upper) Holotype of *Rhinopias cea*, BPBM 36317, 156 mm SL, Easter Island (Louis H. DiSalvo). B. (lower) Aquarium photograph of holotype of *Rhinopias cea* (Louis H. DiSalvo).

pressed V-shape, width 9.3 in head; caudal-peduncle depth 3.8 in head; caudal peduncle length 3.65 in head.

Mouth large, maxilla extending to below middle of eye, upper jaw length 1.85 in head length; mouth oblique, forming angle of about 45° to horizontal axis of body; lower jaw projecting, thickened symphyseal part fitting into shallow median depression of upper jaw when mouth fully closed; villiform teeth in band in jaws,

progressively narrower posteriorly; patch of villiform teeth on each side of vomer; no teeth on palatines.

Head spination, in general, as described for genus by Eschmeyer et al. (1973). No distinct spines on preorbital bone; nasal spine moderate, its length about half pupil diameter; preocular and supraocular spines present but small; postocular spine triangular, its length about half pupil diameter; parietal and nuchal spines well developed, both on prominent longitudinal ridge and linked by low transverse ridge; pterotic and posttemporal spines present, upper posttemporal spine small, lower about twice as large as pterotic spine; suborbital ridge with three small spines, first under middle of eye; upper margin of preopercle with three spines, middle one large, upper one very small; lower margin of preopercle with two bumps; opercle with two prominent spines, lower nearly horizontal and preceded by distinct long ridge, upper projecting dorsally at about a 45° angle. Deeply depressed area between eye and suborbital ridge, extending forward for half length of snout.

Anterior nostril below and slightly anterior to nasal spine, with low fleshy rim and narrow posterior flap which just reaches front edge of nostril when folded forward; posterior nostril also with low fleshy rim, slightly larger than anterior nostril, aperture nearly equal to length of nasal spine; internarial distance about one-fourth eye diameter.

No obvious skin flaps on lower jaw (one tiny flap below lower corner of maxilla); some skin flaps along lower margin of preopercle, largest most anterior, and one at end of vertical ridge on ventral part of preorbital; circular series of small flaps on outer part of iris; no skin flaps on body except for few small ones on lateral-line scales.

Fourth gill slit closed by membrane. Gill rakers short and spinous, longest on first gill arch less than one-third length of longest gill filaments.

Scales on body cycloid, some with auxiliary scales; no scales on head except for upper part of opercular membrane; predorsal scales extending to ridge linking nuchal spines; prepectoral and thoracic scales very small; no scales on fins.

Origin of dorsal fin above anterior end of upper posttemporal spine; first three dorsal spines strongly curved; first dorsal spine 5.9 in head length; second to fourth spines progressively longer, fourth clearly longest, 2.6 in head; remaining spines to eleventh progressively shorter, eleventh 6.3 in head; twelfth dorsal spine twice as long as eleventh; interspinous membranes of adjacent dorsal fin spines not reaching tips of posterior spine; second and third dorsal soft rays longest, 2.8 in head; posterior branch of last dorsal soft ray joined by membrane to caudal peduncle for more than three-fourths its length; origin of anal fin below base of last dorsal spine; first anal spine 6.2 in head; second anal spine 3.3 in head; third anal spine 3.15 in head; second anal soft ray longest, 2.05 in head; eighth and ninth pectoral rays longest, fin length 1.45 in head; origin of pelvic fins anterior to base of pectoral fins; pelvic fins nearly reaching anus, second ray longest, fin length 1.8 in head; two thirds of last pelvic ray joined by membrane to abdomen.

Color in alcohol pale with two blackish blotches on upper side of body, one above eighth lateral-line scale and extending half way to dorsal-fin base, and second centered on eleventh lateral-line scale; faint diffuse dusky blotch at base of seventh dorsal spine and another below anterior part of lateral line; faint dusky blotches on head; faint, narrow, irregular dusky bar extending dorsally from rear base of anal fin, expanding to diffuse dusky blotch on lateral line and continuing into base of dorsal fin; faint irregular dusky blotch centrally at base of caudal fin; few dark flecks on rays in middle of caudal fin.

Color when fresh (Figure 1): brownish orange-red, finely mottled with pale and

blotched with dark brown, most conspicuous markings being two dark blotches on body above pectoral fin.

Remarks.—We name this species *Rhinopias cea* in honor of Dr. Alfredo Cea Egaña, in recognition of his contribution to our knowledge of the fishes of Easter Island, the documentation of their native names, and for his dedication to the people of Rapa Nui as their physician for many years.

It is regretted that there is but a single specimen of *R. cea* to describe, as there was for *R. argoliba*, its apparent closest relative. The latter is still known only from the holotype, 129 mm SL, from Japan. The two species share many features such as the same general configuration, 18 pectoral rays, no obvious skin flaps on lower jaw and few on body; no supraorbital tentacle or flap, fourth dorsal spine longest, and no black spots in fins. They differ in the much higher longitudinal scale count of *argoliba* (Eschmeyer et al. recorded 80, the highest of any of the four species of *Rhinopias*, compared to 56 for *cea*, the lowest count for the genus); the relative length of the third and fourth dorsal spines (subequal in *argoliba*, the fourth 2.8 in head; the fourth spine notably longer than the third in *cea*, 2.6 in head; the interspinous membranes of the fourth to eleventh dorsal spines of *argoliba* reaching to spine tips (membranes incised in *cea*), and the longer caudal and paired fins of *cea*. There is also a difference in life color. *R. argoliba* is bright scarlet with a curious white marking resembling an exclamation point extending anteroventrally from eye and a few, scattered, small white spots (see pl. 281 A of Masuda et al., 1984).

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